TEACHERS' EFFORTS TO DEVELOP STUDENTS' DIGITAL LITERACY: A SURVEY OF JUNIOR HIGH SCHOOL TEACHERS

THESIS

In Partial Fulfillment of the Requirement for Masters' Degree
in English Language Education

by:

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Malang, 30 September 2020

The writer

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iv

MOTTO AND DEDICATION

MOTTO:

"When Stop Learning You Stop Growing"

Allah will raise those who have believed among you and those who were given knowledge, by degrees. And Allah is Acquainted with what you do.

(Al Mujadalah; 11)

DEDICATION:

I dedicate this thesis to:

My beloved parents

My beloved sisters and brothers

My beloved friends

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Finally, I have to express my very profound gratitude to my parents, my classmates, English Teacher Association in Batu for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of writing thesis. This accomplishment would not have been possible without them.

TEACHERS' EFFORTS TO DEVELOP STUDENTS' DIGITAL LITERACY: A SURVEY OF JUNIOR HIGH SCHOOL TEACHERS

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ABSTRACT

Nowadays, students have fast-changing lifestyle related to information and communication technology (ICT) utility. The ease of information and knowledge will support learning process. Adoption of digital technologies in formal education especially in teaching the English language is a must and it comes with problems to be taken care of such as information overload, negative content, and netiquette negligence. The optimation in operating ICT utility called *Digital Literacy* should be started and understood by both teachers and students.

This study explores a survey of the teachers' digital literacy level and teachers' efforts to improve digital literacy in classroom practice specially in Junior High School English Teachers. There were 14 junior high school English teachers who are joining the English Teacher Association in Batu. The data were collected through questionnaires. The findings show that the Junior High School English Teachers who are joining the English teacher association in Batu have good level of digital literacy.

Keywords: Digital Literacy, Teachers' Effort, ICT, English Language Teaching

USAHA GURU DALAM MENGEMBANGKAN LITERASI DIGITAL SISWA: SEBUAH SURVEI TENTANG TINGKAT LITERASI DIGITAL GURU SEKOLAH MENENGAH PERTAMA (SMP)

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ABSTRAK

Saat ini, siswa memiliki gaya hidup yang berubah dengan cepat terkait dengan pemakaian teknologi informasi dan komunikasi (TIK). Kemudahan informasi dan pengetahuan akan mendukung proses pembelajaran. Adopsi teknologi digital dalam pendidikan formal khususnya dalam pengajaran bahasa Inggris adalah suatu keharusan dan disertai dengan masalah yang harus diperhatikan seperti informasi yang berlebihan, konten negatif, dan kelalaian netiket. Optimalisasi dalam pengoperasian utilitas TIK yang disebut Literasi Digital harus dimulai dan dipahami oleh guru dan siswa.

Studi ini mengeksplorasi survei tingkat literasi digital guru dan upaya guru untuk meningkatkan literasi digital dalam praktik di kelas, terutama pada Guru Bahasa Inggris Sekolah Menengah Pertama. Ada 14 guru bahasa Inggris tingkat SMP yang tergabung dalam Musyawarah Guru Mata Pelajaran (MGMP) Guru Bahasa Inggris di Kota Batu. Pengumpulan data dilakukan melalui kuesioner. Hasil penelitian menunjukkan bahwa Guru Bahasa Inggris SMP yang tergabung dalam perkumpulan guru Bahasa Inggris di Batu memiliki tingkat literasi digital yang baik.

Kata kunci: Literasi Digital, Usaha Guru, TIK, Pengajaran Bahasa Inggris

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INTRODUCTION

This chapter discusses the background of the study, research problem, limitation of the study, definition of key terms, and contribution of the study. This chapter also discusses the theoretical framework of this study. The discussion covers the definition of digital literacy and the practices of integrating digital literacy in the teaching and learning process and related theories.

Background of the Study

Education in 21st century demands all education practitioners to focus on how to nurture the students to be ready becoming global citizen by having particular skills. Those needed skills are what it is well-known as 21st-century life skills. Some education practitioners thought that learning thoseskills is the main purpose of 21st-century learning. Critical thinking and problem-solving, creativity and innovation, communication, and collaboration (the 4 Cs) are the skills commonly labeled as 21st-century skills. Therefore, the 4Cs are popular among the educators and becomes the important skills to be implemented in the process of teaching and learning in all subject matters including English. However, the researchers (Kereluik, Mishra, Fahnoe, Terry, & Karr, 2013;Mishra & Mehta, 2017) found that besides mastering the 4 Cs skills, 21st-century education urges the emergence of mastering 21st-century knowledge.

According to Ministry of Education and culture policy (*Permendikbud*) number 22/ 2016 related to standard of process for primary and secondary education, learning and teaching process should utilize information and communication technology (ICT) tools to make the learning and teaching process becomes more effective and efficient. With the advance of technology and media, however, it may be said that as digital natives, students mostly may spend their

leisure times for watching TV, listening to music, playingelectronic games, and involving at socialnetworks such as Facebook and Twitter. As aresult, they are exposed by English material from those media. However, as everyone may freely upload their ideas on the internet, the content of lesson or English materials that we get from the internet should be filtered wisely. A study was conducted in Seoul-South Korea; found that students who do their tasks faster with the help of digital technology have high positive perception toward ICT or digital tools (Seok et al., 2016). It supports that the students will find the tools useful if they often use or access it. Thus, the more familiar they are with the ICT tools, the more comfortable they are with the ICT-integrated class.

There have been several studies (Nguyen, 2014; Hatlevik et al., 2015; Rahmah, 2015) conducted to measure digital literacy level by employing the definition of digital literacy by Martin and Grudziecki (2006) and Belshaw (2011) and dimension of digital literacy by Ng (2012). Nguyen (2014) investigated teachers' digital literacy in Vietnam and found that teachers were uncomfortable to use technology-based class practice when they had insufficient digital literacy as they are role models for their students. It caused the resistance of using ICT in the class (Nguyen, 2014). Digital literacy also affects the students' attitudes toward ICT and Internet. According to Hatlevik et al. (2015), there are major factors that influence their digital literacy which are student's family background and school performance (Hatlevik et al. 2015). Digital literacy is important because if the learner has higher digital literacy, the learner will have higher academic performance (Lee et al., 2015). Hence, many researchers promoted the emergence of training to improve digital literacy for teachers and students.

Rahmah (2015) even suggested parents as role model to have digital literacy education in order to educate their childrenas early as possible, as we know that ICT and Internet users are from wide range of age (Rahmah, 2015) . Aldhafeeri and Khan's (2016) study indicated that digital literacy training should be taken by both teacher and students so their information technology knowledge and skills will be upgraded continually over time. Another research also proved that satisfactory training in digital literacy will result the students' and teachers positive perception of ICT tools use (García-Martín& García-Sánchez,2016). The findings of a study conducted by Ng (2012) showed that students who master digital literacy are able to use unfamiliar ICT tools quickly. Digital literacy education will teach them to use ICT tools and internet appropriately and for meaningful purposes (Ng, 2012).

Some researchers had investigated digital literacy of university students who major on different program studies (Ng, 2012; Ivankovic et al., 2013; Kamangar&Khani, 2015;Ting, 2015;Saxena et al, 2017). Velez, Olivencia and Zuazua (2017) identified the level of digital literacy of some teachers and their children and they found that adults as parents has important role in the improvement of digital literacy of their children. However, the research studied the digital literacy of junior high school students is limited especially in Indonesian context. Son, Hobb and Charismiadji (2011) conducted a study only in university level or senior high school level. Moreover, other researchers (Avidov-Ungar&Iluz, 2014; Nguyen, 2014) who examined the digital literacy of teachers by having survey and case study did not investigate how the teachers' attempts to teach digital literacy in the class. According to the emergence of digital literacy

that has been explained before, it is needed to conduct a research related to digital literacy in the junior high school level that involves both students and the teachers. This research tries to bridge the gap in knowledge concerning the teachers' efforts to improve their students' digital literacy. This research will also cover the investigation on teacher' level of digital literacy as well as the teachers' endeavors in improving students' digital literacy.

Research Problems

Based the theoretical framework, the following research questions are addressed:

1. How is the digital literacy level of Junior High School teachers?
2. What are the teachers' efforts to develop digital literacy in teaching of Junior High School students?

Significance of the Study

As this study is conducted to investigate the picture of digital literacy of Junior High School teacher in EFL classroom and the teachers' efforts to develop digital literacy, the result of this study is useful for English teachers and future researchers.

Teachers can discover students' competence related to the ICT application in classroom therefore based on the result, teachers are able to improve the integration of ICT in EFL class.

For further researchers, the result of the study is also expected to be a good reference for those who are interested in studying such topic.

Limitation of the Study

The scope of this study investigates the digital literacy of Junior High School in Batu; therefore it will only cover the data from sample teachers from

several schools in Batu to investigate the teachers' efforts and the students whom the teachers teach will be examined regarding their digital literacy. In other words, teachers' efforts will be the focus of the study not the teachers' digital literacy level. As it is stated before, this study is mainly a survey study.

Definition of Key Terms

To avoid ambiguity and misunderstanding of term used in this study, the construct and clarification on several terms needs to be conceptualized. They are as follows:

Digital literacy is competence and performance to use the technologies appropriately that is reflected on how the digital tools are integrated, evaluated and used to transfer the knowledge properly.

Teachers' efforts are the attempts or strategies to develop students' digital literacy done by the teachers from several schools in Batu who are joined English Teacher Assosiation (survey-participant teachers).

REVIEW OF RELATED LITERATURE

This chapter presents about the definition of digital literacy, categorization of the digital literacy and teachers' effort,

Digital Literacy

Kereluik et al. (2013) proposed 21st-century knowledge framework and elaborated what actually 21st-century learning is by formulating *the 3 x 3 Model of 21st-century Learning*. The model consists of nine key domains that fall under three broad categories as described in Figure 1.

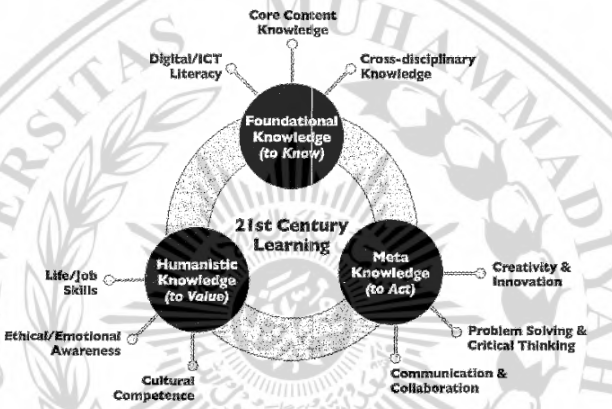


Figure 2.1 The 3 x 3 model of 21st-century learning by Kereluik et al. (2013)

According to the 3 x 3 (three times three) model, in the 21st century there are three broad categories of knowledge that are needed to be learned. They are Foundational Knowledge (*it is related to what the students need to know*), Meta Knowledge (*it elaborates the knowledge of how students can use the foundational knowledge that they have*), and Humanistic Knowledge (*knowledge about the values the students need to bring in social life*). On the framework by Kereluik et al. (2013), the 4 Cs belong to one category of 21st-century learning framework which is the Meta Knowledge. Although all categories are important, a research conducted by (Mishra & Mehta, 2017) found that the other two categories

(foundational knowledge and humanistic knowledge) get lesser attention than Meta Knowledge. They suggested that the importance of balancing the three knowledge in teaching and learning process.

Why having 21st-century knowledge and skills is taken into accountis because it can effectively support the studentsto participate in the society where the Information and Communication Technology (ICT) continuously progress. Based on a survey conducted by *Kominfo*, Internet users in Indonesia reaches the number of 82 million people, it makes Indonesia as the eighth of the biggest internet users in the world (*Kominfo*, 2017). Eighty percents of the users are teens that most of them are junior and senior high school students. Thus, Information Communication Technology (ICT) needs to be integrated in teaching and learning process.

In the implementation of ICT in classroom context, teacher has a big important role. However, some studies found that teachers resist using ICT in their class based on several reasons. Nguyen (2014) found a high degree correlation between teachers' prior learning and teaching experiences and the teachers' use of technology in their class practices. As they should be a model for their students, they should be an expert of the tools they will use and it makes them become too anxious. As the result, they do not try to adopt the ICT tools at all in their class and choose to teach only with media that they comfortable with. Other reason is the lack of technical assistance. Some teachers are challenged to integrate the technology in class, but they cannot find the help from other colleagues (Nguyen, 2014). To overcome this problem, teachers need peer mentoring or training that may encourage them to apply ICT in the class

(Harendita, 2013). Nelissen and Bulck (2017) emphasized the important of being up-to-date with new technology for an adult as the result of study found that children felt uncomfortable with adults who lack of knowledge of technology. A child expectsan adult to be able to give him/hertechnology guidance whether an adult have a role ofparentor teacher (Nelissen&Bulck, 2017). Therefore, teachers should not be hesitant anymore to integrate ICT and start to learn operating new tools in the classes because mastering particular ICT tools does not depend on the age of the users.

Another discussion rises up in the middle of ICT-integrated teaching and learning process. People recently do not only focus on how many ICT tools that the students or teacher can utilize in the educational environment but also how they use it. Therefore, now it is not related to technical things of ICT tools, it concerns on the pedagogical and ethical issues of the integration. Some researchers (Ng, 2012; Bulger et al., 2014; Nguyen, 2014; Hatlevik et al. 2015; Lee et al., 2015; Rahmah, 2015) had investigated this area which is known as one of the new literacy, *digital literacy*. This term was born from a project of European Framework: DigEuLit. (Grudziecki & Martin, 2006) defined that;

> Digital Literacy is the awareness, attitude and ability of individuals to appropriately use digitaltools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digitalresources, construct new knowledge, create media expressions, and communicate with others,in the context of specific life situations, in order to enable constructive social action; and toreflect upon this process.

One attempt to achieve the harmony of categories in 21st-century learning is integrating one of foundational knowledge that is Digital/ ICT literacy. Only integrating ICT tools in the classroom practices does not guarantee that the students will master Digital/ICT literacy. Therefore, some educators need to start

teach digital literacy in teaching and learning process regardless the subject matter that they teach as technology is needed in every field of study.

Digital literacy is an upgraded version of ICT literacy, information literacy, technological literacy, media literacy,and visual literacy (Martin, 2005). Having digital literacy means we have the skill to select, filter and use the information from many sources (Bulger et al., 2014). There are some researches (Martin &Grudziecki, 2006; Aviram&Eshet-Alkalai, 2006; Belshaw, 2011; Pegrum, 2011; Leonard et al., 2016) proposing the key elements and sub skills that indicatesomeone becomes digitally literate.

Martin and Grudziecki (2006) categorized the mastery of digital literacy in three levels (Digital Competence; Digital Usage; Digital Transformation). Students are acknowledged to accomplish level 1 if they master skills, concepts and attitudes related to digital tools application (Digital Competence). Level 2 which is Digital Usage related to whether students are able to utilize digital tools based on the knowledge that they have. Digital Transformation as the highest level demands the students to produce digital data by combining or creating the new one creatively.

On the other hand, Aviram and Eshet-Alkalai (2006) did not use hierarchical order to classify sub-skills in digital literacy. They formulated six major digital literacy skills; *photo-visual literacy, reproduction literacy, branching literacy, information literacy, socio-emotional literacy* and *real-time thinking skill.* Based on the digital literacy concepts by Aviram and Eshet-Alkalai (2006), Ng (2012) drawn three dimensions of digital literacy as follows.

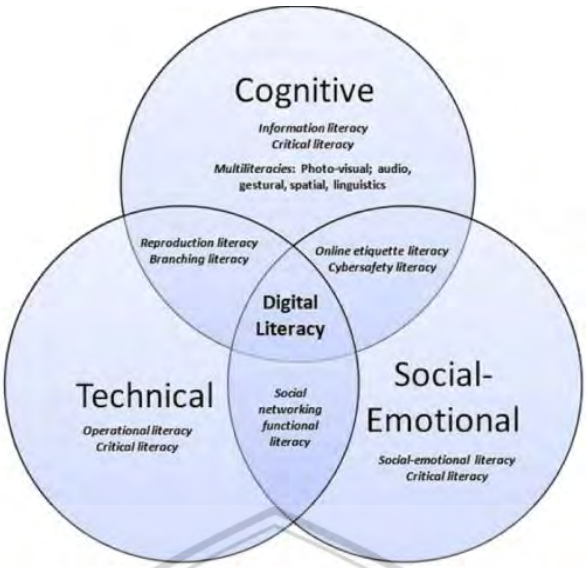


Figure 2.2. Dimensions of Digital Literacy by Ng (2012)

In Ng's (2012) research it suggested that the integration of the three dimensions is important in developing digital literacy.

Similar with Aviram and Eshet-Alkalai (2006), Pegrum (2011) also uses the term 'literacies' for the indicators of digital literacy mastery. Pegrum (2011) conceptualized digital literacy into four focuses with some sub-skills under each focus and completed the concepts with a framework of digital literacy in his later research in 2013 as described below (Dudeney, Hockly, & Pegrum, 2013).

	First focus: Language	Second focus: Information	Third focus: Connections	Fourth focus: (Re-)design
increasing complexity ↓	Print literacy			
	Texting literacy			
**	Hypertext literacy	Tagging literacy		
		Search literacy	**Personal literacy**	
***	Multimedia literacy	Information literacy	Network literacy	
		Filtering literacy	Participatory literacy	
	Gaming literacy		Intercultural literacy	
****	**Mobile literacy**			
*****	Code literacy			**Remix literacy**

Table 2.1 Frameworks of Digital Literacy by Dudeney, Hockly, and Pegrum (2013)

Belshaw (2011) in his dissertation found eight keys of digital literacy which are *cultural, cognitive, constructive, communicative, confident, creative, critical,* and *civic.* Some Belshaw's keys of digital literacyhave equivalent definition with some Pegrum'sliteracies (e.g. constructive key with remix literacy and cultural key with intercultural literacy) (Hockly, 2011).

As the frameworks of digital literacy explained above are related and the sub-literacies overlap and support each other, it can be concluded that digital literacy cannot be achieved discretely by mastering only some particular sub-literacies.In this research,the term *Digital Literacy* should include its three dimensions by Ng (2012) as sub-literacies that have been mentioned by other researchers (Belshaw, 2011;Dudeney et al., 2013) can be categorized in the three dimensions.

RESEARCH METHOD

This chapter discusses research design, setting of the study, population and sample, research instrument, data collection, and data analysis.

Research Design

This study aimed to investigate the level of digital literacy of junior high school teachers and the teacher's effort to develop it. According to Creswell (2012:377), cross-sectional survey design is suitable to tap the answer of this research questions. This type of survey design is useful to collect as many data as possible in one time. Doing cross-sectional survey can efficiently examine the actual practices or behaviours of individual. It allows the researcher to invite a lot of respondents to get more information about digital literacy and teacher's efforts.

Setting of the Study

This study aims to survey the readiness of the junior high school teachers of Batu in contributing their roles as citizen in government programs by investigating their digital literacy as well as the teachers' effort to develop digital literacy of the students.

Population and Sample

Based on the information gathered, in Batu, there are 35 English teachers in the level of junior high schools who Joined the English Teacher Association. Regarding the large number of population, the researcher will take 30% of the population. The researcher used *proportionate stratified random sampling technique* to take the sample. Based on Dornyei (2007:97), *proportionate stratified random sampling technique* is a method for research in which the combination of random sampling with some forms of rational grouping, and from

each group, a random sample of a proportionate size is selected. Proportionate size was selected from each group based on Arikunto (2013:98) to obtain the representative sample from the heterogeneous population.

Research Instrument

This survey study involves three kinds of instruments to collect the data. One instrument aims to measure the level of students' digital literacy and the other is used to find the teachers' effort to improve digital literacy of their students. Digital Literacy Questionnaire adapted from Ting (2015) and *Microsoft Digital Literacy Test* will be used to elicit the current level of digital literacy. To find out the teacher's effort, a questionnaire is formulated to collect that information named Questionnaire of Teacher's effort improving Students' Digital Literacy. The questionnaire consists of researcher-made questions based on concept of digital literacy by Ng (2012) and Martin and Grudziecki (2006).

Digital Literacy Questionnaire

Digital literacy questionnaire consists of 25 questions about technical, cognitive and socio-emotional dimension of digital literacy based on Ting (2015) and *Microsoft Digital Literacy Test*. Those questions present the contextual situations that need to be responded by answering true or false. The teachers' correct answers will indicate their level of digital literacy. The more correct answer they get, the higher their digital literacy level are. In this questionnaire, there is an "*I am not sure*" to encourage the students answering the questions without do a lot of guessing. In that questionnaire, 7 questions are also asked to

collect demographic data. Therefore, there are 32 questions asked in this questionnaire (See Appendix 1).

Questionnaire of Teacher's Effort in Improving Digital Literacy

This questionnaire consists of seven demographic questions to know the teachers' background, seven semi-close-ended questions are asked to dig up the information how the teacher attempts to improve the degree of their students' digital literacy. Total questions for the teachers are 14 questions (See Appendix 2). For semi-close-ended questions, there are some examples of efforts to develop digital literacy as the option. However, teachers are allowed to mention their own strategies or attempts that are not in the option according to their experiences. All answers will be classified to draw categories of teachers' efforts.

The Scoring of the Questionnaires

Digital literacy questionnaire uses dichotomous scoring. The first part which consists of seven questions need to be classify based on the answers to show demographic information. The second part measures teachers' digital literacy by asking 25 true-false questions. In this part, teachers may choose *true*, *false* or even *I'm not sure* statement to response the questions based on their knowledge and experience. "I'm not sure*"* statement is included to the option to reduce random guessing. This format assigns 1 to a correct answer; 0 (zero) to an incorrect answer or *"I'm not sure"* statement.

For the questionnaire of teachers' effort in improving students' digital literacy, like the previous questionnaire, there are seven demographic questions that can be answered by choosing the multiple choices for the first part. The effort of developing digital literacy will be assessed using semi-close-ended questions in

the second part. Teachers may choose one of the available responses or write down their own responses in the available space according the effort that they do in classroom practices. All answers will be classified to draw categories of teachers' efforts.

Data Collection

The first step in collecting the data is visiting the sample of the population. Based on the proportional random sampling, there are 35 teachers who are joined English Teacher Assosiaction in Batu .

The next step is administering the questionnaires. The researcher will visit the school one by one to give the questionnaires. The students will be gathered in the same room. The researcher will give a brief explanation of the research purpose. Then, students may fill in the questionnaires in the given time and directly submit the questionnaires to the researcher.

After the data collected from the students, the researcher will meet the teachers who teach English in the surveyed class. The researcher will ask the teacher to participate in the survey by filling out the questionnaire for teachers. In total, this study is expected to have 15 teachers as respondents. The researcher asks the permissions to observe classroom practices of developing digital literacy of five teachers. The observation will be conducted at least in two meetings.

After the surveys are conducted, the researcher may process the data into the next step which is elaborated in the following Data Analysis.

Data Analysis

When the data are collected, data analysis process begins by scoring both questionnaires. For the first questionnaire which is Digital Literacy Questionnaire,

the items are divided into two parts. Part 1 consists of demographic questions and most of them require continuous responses (related to frequency). Questions in part 2 require the dichotomous response true/false/ *I am not sure*. The correct answer will score 1. The teacher who choose incorrect answer or *I don't know* statement will get 0 (zero). The total score is acquired after the items scores are summed up. The researcher needs to find out another descriptive statistic data by counting the average and standard deviation. The high score that the teachers get indicates they have high degree of digital literacy.

Questionnaire to measure teacher's efforts in improving students' has different way of scoring. For part 1, the rule of scoring is the same with questionnaire for students. The answers of part 2 items need to be classified. There are two kinds of classification; first is based on the dimension of digital literacy by Ng (2012) which are technical, cognitive, and socio-awareness dimension; second is based on the level of digital literacy that formulated by Martin (2006) (level of digital competence, digital usage and digital transformation). Unlike other parts of questionnaire, part 2 allows the respondents to give open-ended answer if the effort of improving digital literacy cannot be found in available options. For this kind of response, the researcher will also classify the answer based on the mentioned classifications. The result will be presented in the form of table and charts. Further, the data analysis result can be used to answer the research questions.

RESEARCH FINDINGS AND DISCUSSION

This chapter presents the research findings and the discussion. The findings of this research are in line with the statement of the problems, it is concerned with the teachers' digital literacy level and teachers' effort. The discussion deals with the interpretation of the findings based on the relevant theories and previous findings.

RESULT AND DISCUSSION

Demographic Data

Table 4.1. Demographic data

N (%)	Yes	No				
1. Do you have access to the Internet at home?	14 (100%)	0 (0 %)				
	0–0.5 h	0.5–1 h	1–2 h	2–3 h	3–4 h	N4 h
2. On average, how much time do you spend each day on the Internet?	0 (0%)	1 (0%)	2 (14.3%)	1 (7.1%)	4 (28.6%)	7 (50%)
	0–0.5 h	0.5–1 h	1–2 h	2–3 h	3–4 h	N4 h
3. On average, how much time do you spend on social networks, e.g., Facebook, each day?	0 (0%)	2 (14.3%)	9 (64.3%)	3 (21.4%)	0 (0%)	0 (0%)
	Facebook	Line	Twitter	Instagram	Tumbler	Whatsapp
4. What primary social networking tool do you use?	7 (50%)	1 (7.1%)	0 (0%)	5 (35.7%)	0 (0%)	1 (7.1%)
	Computer at school	Computer at home	smartphone	laptop	Tablet	Others
5. What primary device do you use to access the social networks?	0 (0%)	2 (14.3%)	10 (30.4%)	1 (7.1%)	0 (0%)	)
	Entertainment	Social activity	Learning	Banking and shopping	Others	
6. What is your primary intention of browsing the internet?	3 (21.4%)	1 (7.1%)	9 (64.3%)	1 (7.1%)		
	Unlimited internet	Limited internet				
7. What kind of internet package do you use for your smartphone?	4 (28.6%)	10 (71.4%)				

Lists the demographic results obtained from the questionnaire survey. As can be seen, all participating teachers have access to the Internet at home, which is also their primary devices for internet and social networking is smartphone (66%). Most teachers spend more than 4 hours (56%) to access internet while (31%) of tecahers spend 1 to 2 hours on the social networks. The result shows that internet activities took up most of their after-

school hours. The main purpose of their internet browsing is for learning (academic-related information (64,3%), followed by entertainment (21.4%), with only (7,1%) of the respondents using the internet for banking and shopping. As reported by questionnaire, Facebook (73%) is the primary social networking tools.

Fourteen out of 35 English teachers in English Teachers Association members of Batu participated in the research. There were 7 (50%) females and 7 (50%) males, with the majority age (50%) in the 41-50 years old age group and most of teachers have already been working in education field for about twenty years.

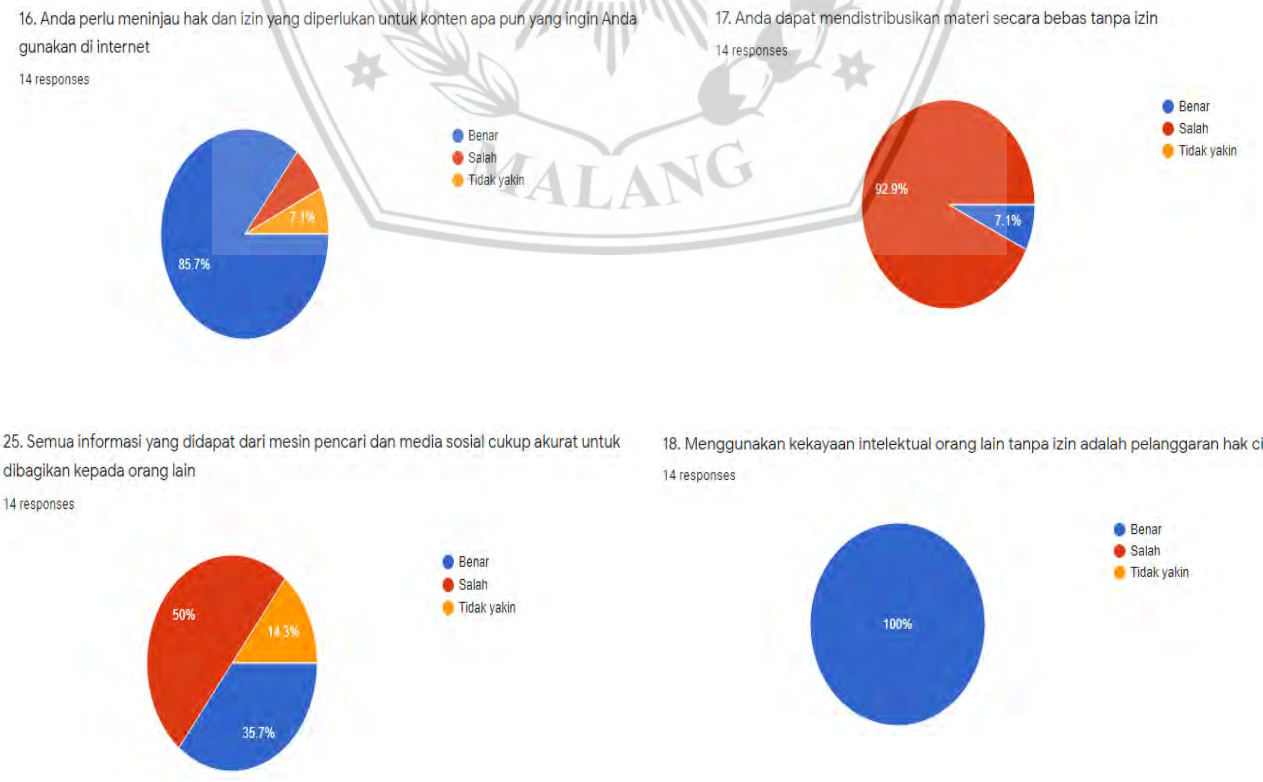
Teachers' Digital Literacy Level

There are 25 questions to measure the teachers' digital literacy level. The Questions are divided into 3 categories. Teachers may choose *true*, *false* or even *I'm not sure* statement to response the questions based on their knowledge and experience. This format assigns 1 to a correct answer; 0 (zero) to an incorrect answer or *"I'm not sure"* statement. There are 5 categorize to measure the level of digital literacy level; 1-5 correct answer indicated very poor; 6-10 correct answer indicated poor level; 11-15 correct answer indicated average level; 16-20 correct answer indicated good level; and 21 - 25 indicated excellent level. There were 9 respondent (64.3%) has good digital literacy level (see table 2), 3 respondent (21.4%) has average level, 1 respondent (7.1%) has poor digital literacy level, and 1 respondent (7.1 %) has excellent level (see table 2). The teachers' average of digital literacy

level is good (16.6%) when they are able to answer the questions related to *cognitive competence.*

Moreover, we can also measure the level of digital literacy based on the 3 categories of the question; technical, cognitive, socio-emotional (*see appendix 1*). Teachers who can correctly answer many questions in the cognitive and socio-emotional aspects can be classified as teachers who have a good level or even excelent level in other words also classified as *digital usage* (Martin & Grudziecki, 2006; Ng, 2012). Questions in the cognitive aspect can be used to measure how far a person's understanding and ethics, especially teachers, which are related to the use of digital tools (recite the source of article, asking for permission when using or retrieving someone else's work, etc). On the other hand, a teacher who answers many questions in the technical aspect correctly, can be categorized as moderate level or classified as *digital competence*.

Figure 4.1 Congnitive questions to measure Teacher's Digital Literacy Level



Teacher's Effort to Improve Digital Literacy in Classroom Practices

Teachers have various effort to improve students' digital literacy in teaching and learning process. They usually use digital tools to explain the materials. Teachers also should explain remind the netiqute to students in taking sources from internet. Students should recite the sources which are taken from the internet. Based on the data, most of teachers are using digital tools or application in daily (40%) to deliver the instruction in the class while (13,3 %) teachers are using the digital tools monthly. They also choose the popular application (60%) to deliver the materials while only a few of them (6,7%) choose the less familiar application. Instead of assigning students to create digital works (20%), the teachers prefer to introduce new tools or application (80%) to encourage students to use digital tools in learning process instead of assigning students to create digital works. The teachers also ask them to do crosschecking (53,3%) to organize the information from the internet and some of them also give students the characteristic of trusted information (46,7%) related to the materials. Utilizing digital tools to create cooperative learning in the English class, teachers rather to make a group chat of Whatssapp (86,7%) than giving group project which needs a lot of likes or view (13,3%). The teachers also always remind the students to recite the sources (100%) in taking the articles or materials especially for finding explanation related to English instruction.

Table 4.2 Teacher's Effort to improve digital literacy in classroom practices

No	Questions	Answer	Percentage
1.	How often do you use digital tools or applications in your English class?	Daily	40 %
		Once a week	20 %
		Twice a week	26.7 %
		Monthly	13.3 %
		Never user	0 %
2.	How do you choose the digital tools or applications	Choose the popular applications	60 %

	to be used in your class?	Choose the digital tools or application that the students prefer to	26.7 %
		Confidently introduce a useful digital tool or application even though it is less familiar	6.7 %
		Choose the simplest and easiest tools for both student and teacher	6.7 %
		Others	0 %
3.	In what way do you encourage the students to use digital tools in the learning process especially for English subjects?	by introducing new tools or applicationsin class	80 %
		by assigning the students to create digital works	20 %
		Others	0 %
4	How do you teach the students to organize the information especially from the internet?	by asking them to always do crosschecking	53.3 %
		by giving the characteristics of trusted information	46.7 %
		others	0 %
5.	In what way do you utilize digital tools to create cooperative learning in your English class?	by having a group chat of Whatsapp	86.7 %
		by giving group project that needs a lot of "likes" or "views"	13.3 %
		Others	0 %
6.	How do you facilitate the students to solve the problems related to netiquette issues?	by giving a course to train them	0 %
		by always remind the students to recite the sources	100 %
		Others	0 %

The Stages and Teachers' Effort in Introducing Digital Literacy to Students

The teacher's effort to use digital tools as a means of delivering English material in the classroom is the initial stage for introducing digital literacy by using applications that are commonly used and easy to operate. Some teachers who have been and are currently participating in ICT Training (PembaTIK) held by the Ministry of Education also strive to use digital tools or applications that are often used or visited by students, such as uploading English material to YouTube or social media (facebook and instagram) so that students have prior knowledge before joining the class and enrich students' knowledge related to the English instruction. Some students are also excited to give responses to materials uploaded by teachers by giving like or comment. Sometimes, the teachers also asked students to perform tasks by uploading it on their social media individually or in groups.

Meanwhile, teachers who are still in the beginner or *digital immigrant* in using digital media prefer to use simple applications according to them and simply take the information available on the internet by sharing the link related to the instruction in a group chat of Whatssapp. Nevertheles, all of teachers agreed that in the use of digital tools or applications, there is a goal of rules called netiquette (network and etiquette) such as cite the source of information or knowledge taken from the internet, use proper language (in video conferece forum or giving comment).

CONCLUSION AND SUGGESTION

Based on the findings and discussion of the study presented previously, several conclusions and suggestions are put forward. The conclusions deal with the needs of teachers digital literacy level and teachers effort to develop students' digital literacy. The suggestions are proposed based on the basis of research findings.

Conclusion

Nowadays, almost all students are digital natives. They acquire their digital literacy autonomously and adept at using various Information and Communication Technology (ICT) tools to enrich their insight. This research sought to survey the teachers' digital literacy level and effort to develop digital literacy of junior high school students. The result revealed that some teachers are having average level of digital literacy and only a few of them has the poor level of digital literacy. Some teachers also strive to use digital tools or application which are familir with students and used it for delivering English instruction. The teachers must improve their ability in operating digital tools to support teaching and learning, grab students' attention specially in English instruction.

Suggestion

In the digital era, teachers must use new pedagogical methods and must understand how ICT and pedagogy interact to facilitate the development of competencies in their students. Instead of treating students' digital literacy as an operational ability that allows them to use digital tools for learning in schools, teachers need to direct students about ethics in using the internet (netiquette). Students need to be reminded to use digital tools and ICT wisely, especially in

using proper language, no swearing and discipline in reciting the sources of information.

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Appendix 1

BLUEPRINT OF DIGITAL LITERACY QUESTIONNAIRE

Variable	Sections	Objectives	Aspects	Item Number	Corresponding Items	Percentage (%)
Teachers' Digital Literacy	I. Demographic Data	To know the information about teachers' experience in using digital tools and accessing internet	Access of Internet	1, 2, 3, 4, 5 (5 items)		15.6
			The Use of Social Media	6, 7 (2 items)		6.25
			Dimension of Digital Literacy			
	II. Digital Literacy Test	To measure teachers' digital literacy level	Technical	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 23, 24 (13 items)		40.6
			Cognitive	11, 12, 13, 14, 16, 17,18,19, 21, 22, 25 (11 items)		34.4
			Socio-Emotional	20 (1 item)		3.15

Appendix 2

BLUEPRINT OF TEACHER'S EFFORTS TO DEVELOP STUDENTS' DIGITAL LITERACY

Variable	Sections	Objectives	Aspects	Item Number	Corresponding Items	Percentage (%)
Teacher's Efforts	I.Demographic Data	To know the information about teacher's education background	Age and Gender	1, 2 (2 items)		14.28
			Education Background	3, 4, 5, 6, 7 (5 items)		35.71
	II. Teacher's Efforts	To reveal teacher's efforts to develop students' digital literacy	The Use of Digital Tools in Teaching	1, 2 (2 items)		14.28
			Teacher's preference in using Social Media	3 (1 item)		7.15
			Effort to develop Technical dimension of Digital Literacy	4 (1 item)		7.15
			Effort to develop Cognitive dimension of Digital Literacy	5, 7 (2 items)		14.28
			Effort to develop Socio-emotional dimension of Digital Literacy	6 (1 item)		7.15

Appendix 3

Questionnaire of Teacher's Efforts to Improve Students' Digital Literacy

Adapted from (Martin, A. & Grudziecki, J. 2006 Microsoft. 2014; Ng, Wan. 2012; Ting, Y. L. 2015)

I. Demographic data

Answer these questions by choosing one of the available options

1. How old are you?
   __20-30
   __31-40
   __41-50
   __51-60
   __60+

2. What is your gender?
   __Male
   __Female

3. Are you currently in a program of study at a college/university?
   __Yes
   __No

4. What is the highest degree you've obtained?
   __High school graduate
   __Associate's degree
   __Bachelor's degree
   __Master's degree
   __Doctoral degree

5. What study program that you graduated from?
   __English language and literature
   __English language teaching

6. How many years since your last degree?
   __1-3 years
   __4-7 years
   __8-11 years
   __12-15 years
   __15-20 years

__20+ years

7. How long have you worked in education field?
__1-3 years
__4-6 years
__6-10 years
__11-15 years
__15-20 years
__20+ years
__N/A

II. Teacher's Effort to improve digital literacy in classroom practices

Choose one of the available answers that you agree or write your own answer on the provided space.

1. How often do you use digital tools or applications in your English class?

__daily
__once a week
__twice a week
__monthly
__more than monthly
__never use

2. How do you choose the digital tools or applications to be used in your class?

__choose the popular digital tools or applications
__choose the digital tools or applications that the students prefer to
__confidently introduce a useful digital tool or application even though it is less familiar
__others (please mention) _____

3. Do you become a friend or follower of your students in Social Network System (e.g. Facebook, Instagram, Twitter)?

__yes, why? _____

__no, why not? _____

4. In what way do you encourage the students to use digital tools in the learning process especially for English subject?

___by introducing new tools or applications in class
___by assigning the students to create digital works
___other (please mention) _____

5. How do you teach the students to organize the information especially from internet?

___by asking them to always do crosschecking
___by giving the characteristics of trusted information (mencari karakteristik apa saja berkaitan dengan informasi yang terpercaya)
___other (please mention) _____

6. In what way do you utilize digital tools to create cooperative learning in your English class?

___by having a group chat of Whatsapp
___by giving group project that needs a lot of "likes" or "views"
___other (please mention) _____

7. How do you facilitate the students to solve the problems related to netiquette issues?

___by giving a course to train them
___by always remind the students to recite the sources
___other (please mention) _____

Appendix 4

DIGITAL LITERACY QUESTIONNAIRE

III. Demographic data

Please choose one of the options to answer the questions below.

1. Do you have access to the internet at home?
   ___yes
   ___no
2. On average, how much time do you spend each day on the internet?
___0-0.5 hour
___0.5-1 hour
___1-2 hours
___2-3 hours
___3-4 hours
___>4 hours
3. On average, how much time do you spend on social networks each day?
___0-0.5 hour
___0.5-1 hour
___1-2 hours
___2-3 hours
___3-4 hours
___>4 hours
4. What primary social networking tool do you use?*
___Facebook
___Line
___Twitter
___Instagram
___Tumbler
___Others_____
5. What primary device do you use to access internet?
___computer at school
___computer at home
___laptop
___tablet
___smart phone
___others_____
6. What kind of internet package do you use for your smart phone?
___unlimited internet package
___limited internet package
___Wi-Fi only
7. What is your primary intention of using internet?
___entertainment (recreational information or general knowledge)
___social activity (mailing, chatting and social networking)
___learning (academic-related information)
___banking and shopping
___others_____

IV. Digital Literacy

Please choose one of the answers that you agree related to the statements.

1. MP3 files are commonly used to stream music on the internet
   __true
   __false
   __I am not sure
2. Speaking to your computer to write a document is an example of speech recognition
   __true
   __false
   __I am not sure
3. Digital video record is smaller than earlier video as it does not need to use tape
   __true
   __false
   __I am not sure
4. You can only share digital video files by giving CD or DVD to other users
   __true
   __false
   __I am not sure
5. All digital cameras allow you to edit photos and digital images
   __true
   __false
   __I am not sure
6. You must always have an internet connection to watch TV or movies on your computer or smart devices
   __true
   __false
   __I am not sure
7. Video conferencing requires a high-speed internet connection
   __true
   __false
   __I am not sure
8. The extreme heat can melt components of the computer
9. Keyboard can be destroyed by a sudden power surge
   __true
   __false
   __I am not sure
10. A computer that is plugged directly into the wall outlet is vulnerable to damaging power surge
    __true
    __false
    __I am not sure
11. Identity theft is an example of virtual theft
    __true
    __false
    __I am not sure
12. A firewall is an effective way to protect against threat
    __true
    __false
    __I am not sure
13. Restricting access to your computer can keep data safe from others
    __true
    __false
    __I am not sure
14. Spam emails can be stopped with antivirus software
    __true
    __false
    __I am not sure
15. Trojan virus can be stopped with email filters
    __true
    __false
    __I am not sure
16. You need to review the rights and required permission for any content you want to use on the

__true
__false
__I am not sure

17. You may freely distribute materials without permission
__true
__false
__I am not sure
18. Using other's intellectual property without permission is a copyright violation
__true
__false
__I am not sure
19. Download a video you have made is a piracy
__true
__false
__I am not sure
20. Spreading false information that harm others' credibility is criminal offence
__true
__false
__I am not sure
21. Auto Content Wizard is used to represent the data into a chart
__true
__false
__I am not sure
22. A blog enables your friends to be able to read your online journal
__true
__false
__I am not sure

internet
__true
__false
__I am not sure

23. Converting is a process of saving an audio recording into a recordable CD
__true
__false
__I am not sure

24. Online games can be played by more than one player in the same time
__true
__false
__I am not sure
25. All information that is gotten from the search engines and social media is accurate enough to be shared to others
__true
__false
__I am not sure

Appendix 5. The result of the normality test (The answer of questionnaire from Teacher's Digital Literacy Level)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total
1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	1	0	1	0	0	0	7
2	1	1	1	0	0	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1	0	1	1	0	0	15
3	0	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	19
4	1	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	0	1	1	1	0	16
5	0	1	1	1	0	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	1	1	1	1	17
6	1	0	0	1	0	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1	0	1	0	1	1	15
7	1	1	1	1	0	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1	0	1	0	1	1	18
8	1	1	1	0	1	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	19
9	1	1	1	0	0	0	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	18
10	1	1	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	20
11	1	1	1	1	0	0	1	1	0	1	1	0	1	0	0	1	1	1	0	1	0	1	1	0	1	16
12	1	1	1	1	0	0	1	1	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	0	0	17
13	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	21
14	1	0	1	0	0	0	1	1	0	1	1	1	1	1	0	1	1	1	0	1	0	1	1	0	0	15